

# STIC Search March 1, 2007

## NON-PATENT LITERATURE

[File 155] MEDLINE(R) 1950-2007/Feb 27  
[File 5] Biosis Previews(R) 1926-2007/Feb W4  
[File 73] EMBASE 1974-2007/Feb 28  
[File 34] SciSearch(R) Cited Ref Sci 1990-2007/Feb W4  
[File 434] SciSearch(R) Cited Ref Sci 1974-1989/Dec  
[File 94] JICST-EPlus 1985-2007/Mar W1  
[File 144] Pascal 1973-2007/Feb W3  
[File 35] Dissertation Abs Online 1861-2007/Feb  
[File 65] Inside Conferences 1993-2007/Mar 01

| Set | Items  | Description  |
|-----|--------|--|
| S1  | 21385  | S (CORNEA OR CORNEAL) (1N)EPITHELIUM   |
| S2  | 2476   | S BOWMAN? ?(1W) (MEMBRANE? ? OR LAYER? ?) OR (ANTERIOR() (LIMITING OR ELASTIC)())LAMINA) |
| S3  | 40     | S DEEPITHELIAL?ED()CORNEA  |
| S4  | 304544 | S LENS OR LENSES   |
| S5  | 62     | S S1 AND S2 AND S4   |
| S6  | 13     | S S1(3N)S2 AND S4  |
| S7  | 9      | RD (unique items)  |
| S8  | 9      | SORT S7/ALL/PY,A   |
| S9  | 38420  | S (GRAFT??? OR IMPLANT?) (S)S4   |
| S10 | 7      | S S5 AND S9  |
| S11 | 3      | S S10 NOT S6   |
| S12 | 0      | S S3 AND S9  |
| S13 | 4      | S S3 AND S4  |
| S14 | 4      | S S13 NOT (S6 OR S10)  |
| S15 | 1      | RD (unique items)  |
| S16 | 46     | S S5 NOT (S6 OR S10 OR S13)  |
| S17 | 29     | RD (unique items)  |
| S18 | 3      | S S17/2003:2004  |
| S19 | 2      | S S17/2005   |
| S20 | 4      | S S17/2006:2007  |
| S21 | 20     | S S17 NOT S18:S20  |
| S22 | 20     | SORT S21/ALL/PY,A  |

8/7/1 (Item 1 from file: 5)

Biosis Previews(R)

(c) 2007 The Thomson Corporation. All rights reserved.

0001080374 Biosis No.: 19603500062813

**Standing potentials of the frog's eye**

**Author:** DZENDOLET ERNEST

**Journal:** JOUR OPTICAL SOC AMER 50 ( (6) ): p 551-555 1960 1960

**Document Type:** Article

**Record Type:** Abstract

**Language:** Unspecified

**Abstract:** With the in-place frog's eye, the potential difference between the center of the **corneal** surface and the rest of the **cornea** reached a maximum of about -15 mv at the corneoscleral junction. This large a **corneal** potential difference may be the immediate source of the potential presumably utilized in the electro-oculogram, rather than the **cornea**-to-fundus potential. A slightly injured section of the **cornea** and also the aqueous humor had a potential of approximately + 15 mv with reference to the **corneal** center. These two potentials appeared to be separated by an insulating layer, presumably the interface between the **corneal epithelium** and **Bowman's membrane**. The potential difference between the **corneal** center and the front interior part of the **lens** was about - 33 mv, and about - 47 mv for the back. The vitreous side of the retina was about - 2 mv. Within the retina, transient steps of about - 50 mv occurred. These were not the same shape or in

the same order from frog to frog, or from one place in the same retina to another, except for one. This was a step of - 40 to - 60 mv which was presumably Brindley's R membrane.

ABSTRACT AUTHORS: Author

8/7/3 (Item 3 from file: 73)

Fulltext available through: [USPTO Full Text Retrieval Options](#) [ScienceDirect](#)  
[EMBASE](#)

(c) 2007 Elsevier B.V. All rights reserved.

03685006 [EMBASE No: 1988134442](#)

**Clinico-pathological study of 4 removed kerato-lens lenticles**

ETUDE HISTOLOGIQUE DE 4 LENTICULES D'EPIKERATOPLASTIE. CORRELATIONS ANATOMO-CLINIQUES

Mader P.; Colin J.; Baikoff G.; Volant A.; Ertus

Service d'Ophtalmologie, Centre Hospitalier Regional, 29200 Brest France

Journal Francais d'Ophtalmologie ( J. FR. OPHTALMOL. ) ( France ) 1988 , 11/2 (143-149)

CODEN: JFOPD ISSN: 0181-5512

Document Type: Journal

Language: FRENCH Summary Language: ENGLISH

Four removed kerato-lens lenticles (1 for keratoconus, 1 for aphakia, and 2 for myopia) have been studied histologically. The reasons for removal of the lenticles were poor visual acuity in spite of a satisfactory anatomic result in three cases and epithelialization of the interface in one case. The **epithelium** presented modifications, particularly with exoserosis of basal cells and irregularities of thickness. The **Bowman** membrane was irregular and interrupted in some parts. The **corneal** stroma had few cells; the keratocytes were observed in the periphery of the lenticle and near the interface.

8/7/5 (Item 5 from file: 73)

Fulltext available through: [custom link](#) [USPTO Full Text Retrieval Options](#)  
[ScienceDirect](#)  
[EMBASE](#)

(c) 2007 Elsevier B.V. All rights reserved.

05894375 [EMBASE No: 1994303749](#)

**Recurrent corneal erosion in cystinosis**

Elder M.J.; Astin C.L.K.

Moorfields Eye Hospital, City Rd, London EC1V 2PD United Kingdom

Journal of Pediatric Ophthalmology and Strabismus ( J. PEDIATR. OPHTHAL. STRABISMUS ) ( United States ) 1994 , 31/4 (270-271)

CODEN: JPOSD ISSN: 0191-3913

Document Type: Journal ; Article

Language: ENGLISH

8/7/6 (Item 6 from file: 155)

Fulltext available through: [ScienceDirect \(Elsevier\)](#) [USPTO Full Text Retrieval Options](#) [ScienceDirect](#)  
[MEDLINE\(R\)](#)

(c) format only 2007 Dialog. All rights reserved.

13721087 PMID: 11978471

**Bipseudophakia: clinicopathological correlation of a dropped lens.**

Izak Andrea M; Apple David J; Werner Liliana; Trivedi Rupal H; Pandey Suresh K; Macky Tamer A; Schmidbauer Josef M; Marsh Peter

Center for Research on Ocular Therapeutics and Biodevices, Storm Eye Institute, Medical University of South Carolina, Charleston, South Carolina 29425-5536, USA.

Journal of cataract and refractive surgery ( United States ) May 2002 , 28 (5) p874-82 , ISSN: 0886-3350--Print Journal Code: 8604171

Publishing Model Print; Comment in J Cataract Refract Surg. 2003 Jan;29(1) 4; author

reply 4; Comment in PMID 12551643; Comment in J Cataract Refract Surg. 2003 Oct;29(10):1853; Comment in PMID 14604699

**Document type:** Case Reports; Journal Article

**Languages:** ENGLISH

**Main Citation Owner:** NLM

**Record type:** MEDLINE; Completed

**PURPOSE:** To examine postmortem human globes containing an anterior chamber and a posterior chamber intraocular **lens** (IOL). **SETTING:** Center for Research on Ocular Therapeutics and Biodevices, Storm Eye Institute, Charleston, South Carolina, USA.

**METHODS:** The globes were sectioned at the equator, and the anterior and posterior segments were macroscopically examined. Gross photographs were taken using the Miyake-Apple posterior photographic technique. Histological sections were cut and stained with hematoxylin and eosin, periodic acid-Schiff, and Masson's trichrome. **RESULTS:** Histopathological findings included a large Soemmering's ring, a tear in the posterior capsule, 1 haptic of the anterior chamber IOL displaced into the iridectomy, thin and atrophic **corneal epithelium**, separation of **Bowman's layer** and stroma by fibrovascular tissue, and atrophy of the retinal ganglion cell layer and nerve fiber layer. **CONCLUSION:** In cases in which secondary IOL implantation is indicated, removing the dislocated IOL appears to be a reasonable choice.

**Record Date Created:** 20020429

**Record Date Completed:** 20020625

11/7/3 (Item 3 from file: 73)

Fulltext available through: [ScienceDirect \(Elsevier\)](#) [USPTO Full Text Retrieval](#)

Options [ScienceDirect](#)

EMBASE

(c) 2007 Elsevier B.V. All rights reserved.

05119763 [EMBASE](#) No: 1992259979

**Clinical and histopathologic changes in the host cornea after epikeratoplasty for keratoconus**

Rodrigues M.; Nirankari V.; Rajagopalan S.; Jones K.; Funderburgh J.

Department of Ophthalmology, Medical School Teaching Facility, University of Maryland, 10 S. Pine St., Baltimore, MD 21201 United States

American Journal of Ophthalmology ( AM. J. OPHTHALMOL. ) ( United States ) 1992 , 114/2 (161-170)

**CODEN:** AJOPA **ISSN:** 0002-9394

**Document Type:** Journal ; Conference Paper

**Language:** ENGLISH **Summary Language:** ENGLISH

Five consecutive patients underwent epikeratoplasty for keratoconus. Postoperatively, four patients had poor visual acuity (average, 20/200) secondary to folds in Descemet's membrane and interface scarring. Two underwent penetrating keratoplasty eight months later. Histopathologic examination of the host **corneas** and the overlying lenticules disclosed epithelial irregularity and subepithelial fibrosis. The host **corneas** showed folds in Descemet's membrane and focal posterior stromal fibrosis. Electron microscopy disclosed breaks in **Bowman's membrane** with irregular collagen, posterior aggregates of amorphous material, and focal endothelial degeneration. The fifth patient had **graft** ulceration and vascularization that required removal of the lenticule. She underwent a penetrating keratoplasty five months later and histopathologic examination demonstrated persistent folds in Descemet's membrane. Immunostaining of specimens from three cases disclosed a reduced expression of sulfated epitopes of keratan sulfate and an increase in sulfated dermatan-sulfate in the lenticule and host **corneal** tissues. These alterations in stromal proteoglycans are characteristic of stromal scars and keratoconus and provide evidence of pathologic processes in the **graft** tissue. Because of potential complications, epikeratoplasty should be considered only for those patients who are unsuitable candidates for contact **lenses** or penetrating keratoplasty.

15/7/1 (Item 1 from file: 155)

Fulltext available through: ScienceDirect (Elsevier) USPTO Full Text Retrieval  
Options ScienceDirect

MEDLINE(R)

(c) format only 2007 Dialog. All rights reserved.

13616192 PMID: 11821223

**Acanthamoeba keratitis after photorefractive keratectomy.**

Kaldawy Roger M; Sutphin John E; Wagoner Michael D

Cornea and External Disease Division, Department of Ophthalmology, Boston University Medical Center, Boston, Massachusetts, USA. Rogerkaldawy@bmc.org

Journal of cataract and refractive surgery (United States) Feb 2002, 28 (2) p364-8  
ISSN: 0886-3350--Print Journal Code: 8604171

Publishing Model Print

Document type: Case Reports; Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

A 37-year-old women developed severe suppurative keratitis immediately after having photorefractive keratectomy in her left eye. The keratitis was unresponsive to intensive topical antibiotic agents and topical and systemic steroids. Although the differential diagnosis included nonmicrobial and fungal keratitis, the clinical course and confocal microscopy suggested, and subsequent histopathologic examination confirmed, a diagnosis of Acanthamoeba keratitis. The amebic contamination probably resulted from exposure of the **deepithelialized cornea** to contaminated freshwater in a northern Wisconsin marsh. This case emphasizes the importance of encouraging patients with epithelial defects and bandage soft contact **lenses** to avoid exposure to contaminated freshwater until reepithelialization is complete.

Record Date Created: 20020131

Record Date Completed: 20020311

22/6/1 (Item 1 from file: 5)

0001903115 Biosis No.: 19684900061757

**The Golgi apparatus in the eye tissues [Engl. and Russ. sum.]**

Original Language Title: Aparat golgiego w tkankach oka [Engl. and Russ. sum.]

1965

22/6/2 (Item 2 from file: 73)

00119482 EMBASE No: 1974109584

**Immunofluorescence localization of lens crystallins and serum proteins in chick intraocular tissues**

Publication Date: 1973

22/6/3 (Item 3 from file: 73)

00546730 EMBASE No: 1976102349

**Demonstration of lens proteins and serum proteins in the intraocular tissues of the chicken by means of immunofluorescence**

Publication Date: 1975

22/6/4 (Item 4 from file: 5)

05346722 Biosis No.: 197865007709

**OBSERVATIONS ON THE MORPHOLOGY OF THE DEVELOPING PRIMATE CORNEA EPITHELIUM ITS INNERVATION AND ANTERIOR STROMA**

1977

22/6/5 (Item 5 from file: 5)  
06315069 Biosis No.: 198172049020  
**OCULAR MANIFESTATIONS OF CONRADI AND ZELLWEGER SYNDROMES**  
1981

22/6/8 (Item 8 from file: 155)  
06025531 PMID: 6186543  
**Monoclonal antibody analysis of ocular basement membranes during development.**  
Jan 1983

22/6/18 (Item 18 from file: 155)  
12538380 PMID: 10487426  
**Contact lens-induced peripheral ulcers with extended wear of disposable hydrogel lenses: histopathologic observations on the nature and type of corneal infiltrate.**  
Sep 1999

22/7/6 (Item 6 from file: 155)  
Fulltext available through: [USPTO Full Text Retrieval Options](#) [ScienceDirect](#)  
MEDLINE (R)  
(c) format only 2007 Dialog. All rights reserved.  
05973737 PMID: 7162077  
[Corneal changes due to HEMA lenses]  
Hornhautveranderungen verursacht durch HEMA-Linsen.  
Rubey F; Harrer S  
Klinische Monatsblatter fur Augenheilkunde ( GERMANY, WEST ) Nov 1982 , 181 (5) p344-5 , ISSN: 0023-2165--Print Journal Code: 0014133  
Publishing Model Print  
Document type: Journal Article ; English Abstract  
Languages: GERMAN  
Main Citation Owner: NLM  
Record type: MEDLINE; Completed  
The topic of this paper is the appearance of palisade-shaped, soft, gray opacities of the corneal epithelium in wearers of HEMA lenses. The opacity emanates from the limbus and is located under the upper eyelid. The paper also deals with the formation of folds in Bowman's membrane. They are approximately horizontal, are usually located within the lid-fissure and occur in combination with large-scale opacity of the corneal epithelium in the upper third of the cornea. The differential diagnosis of well-known corneal changes is also discussed.  
Record Date Created: 19830407  
Record Date Completed: 19830407

22/7/7 (Item 7 from file: 155)  
Fulltext available through: [USPTO Full Text Retrieval Options](#) [ScienceDirect](#)  
MEDLINE (R)  
(c) format only 2007 Dialog. All rights reserved.  
05830321 PMID: 7102810  
**Contact lens-induced corneal epithelial injury.**  
Bergmanson J P; Chu L W  
American journal of optometry and physiological optics ( UNITED STATES ) Jun 1982 , 59 (6) p500-6 , ISSN: 0093-7002--Print Journal Code: 0417614  
Publishing Model Print  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: MEDLINE; Completed

Rigid contact **lenses** were fitted on primates to study the subsequent **corneal epithelial** injury. This trauma was compared to **corneal** abrasions produced by a blunt object. The traumatic abrasion caused a rupture of the basal cells, which were identified as the most vulnerable part of the **corneal epithelium** for such an injury. The internal plasmalemma of the basal cell remained adherent to the epithelial basement membrane due to the strong hemidesmosomes along the cell membrane. Contact **lenses** were capable of producing similar injuries which did not penetrate the basement membrane and therefore did not involve the **anterior limiting lamina** (**Bowman's membrane**). We concluded that contact **lenses** produce a self-limiting trauma and even a severe case of contact **lens** overwear, although it causes deep **corneal** abrasions, seldom results in permanent scar formation.

Record Date Created: 19820924

Record Date Completed: 19820924

22/7/10 (Item 10 from file: 35)

Dissertation Abs Online

(c) 2007 ProQuest Info&Learning. All rights reserved.

01146049 ORDER NO: NOT AVAILABLE FROM UNIVERSITY MICROFILMS INT'L.

CAT AND MONKEY CORNEA AS MODELS FOR EXTENDED HYDROGEL CONTACT LENS WEAR IN HUMANS  
(CONTACT LENS)

Author: MADIGAN, MICHELE C.

Degree: PH.D.

Year: 1989

Corporate Source/Institution: UNIVERSITY OF NEW SOUTH WALES (AUSTRALIA) ( 0423 )

Source: Volume 5110B of Dissertations Abstracts International.

PAGE 4787 .

The cat and monkey **cornea** were investigated as possible models for human extended contact **lens** wear. Compared to the monkey and human **cornea**, the cat **cornea** was thicker and of parallel thickness. The cat **cornea** also had a thicker **epithelium**; an indistinct **Bowman's layer** and proportionately thicker Descemet's layer. The structure of the monkey **cornea** was similar to the human **cornea**.

Following extended contact **lens** wear, the cat demonstrated **corneal** oedema, refractile **corneal epithelium** changes, reduced oxygen uptake rate and reduced epithelial adhesion evidenced by areas of epithelial loss associated with contact **lens** wear. The cat endothelium was unaffected by extended contact **lens** wear. The monkey **cornea** sometimes displayed areas of epithelial loss with extended contact **lens** wear, and as in the human, also developed endothelial polymegathism and pleomorphism. Reversible endothelial changes associated with contact **lens** wear and anterior eye inflammation were also observed in the monkey **cornea**. In both animal models, the **epithelium** was most affected by contact **lens** wear, displaying reduced microvilli, decreased layers of cells, loss of normal columnar basal cell shape and slight intra- and intercellular oedema. Deep stromal vascularisation was observed in several monkey **corneas**, the new vessels frequently being associated with leucocytes. An association between leucocytes and active keratocytes was also noted. Apoptotic involution of neutrophils was also noted in one **cornea**. The association of leucocytes, active keratocytes and vessels was also noted in a cat bacterial **corneal ulcer**.

No significant difference was found between cat **lens**-wearing and control eye epithelial wound healing rates, although **lens**-wearing **epithelium** was significantly easier to remove by scraping. Ultrastructurally, there were significantly less hemidesmosomes (HDs) in the **lens**-wearing eye. The basement membrane (BM) lamina densa remained intact following scraping, indicating anchoring fibrils were probably unaffected. Oedematous areas were not visible between basal cells and the BM. The observed loss of epithelial adhesion in **lens**-wearing eyes may thus be explained by a significant reduction in HD density. This compromised **epithelium** may be involved in development of contact **lens**-related **corneal** infections.

Overall, the cat **cornea** would appear to be a suitable model for the human **corneal epithelium** during extended contact **lens** wear; the monkey **cornea** providing a more suitable

model for the human **corneal** endothelium.

22/7/12 (Item 12 from file: 155)

Fulltext available through: [USPTO Full Text Retrieval Options](#) [ScienceDirect](#)  
MEDLINE(R)

(c) format only 2007 Dialog. All rights reserved.  
09479997 PMID: 1483124

**Simplified microsurgical method of therapy for recurrent corneal erosion.**

Vegh M

Department of Ophthalmology, Albert Szent-Gyorgyi Medical University, Hungary.  
German journal of ophthalmology ( GERMANY ) 1992 , 1 (3-4) p135-8 , ISSN: 0941-2921-  
-Print Journal Code: 9206441

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Recurrent **corneal** erosion can develop after superficial trauma and can prove unresponsive to traditional forms of conservative treatment. Over the past 5 years, we have treated 17 unilateral cases with our own surgical technique. The following method was applied for treatment: under an operating microscope the separated **corneal epithelium** was excised with microforceps and Vannas microscissors. After this, the underlying hypertrophic basement membrane was peeled off **Bowman's membrane** with a foreign body needle and excised at the rim with Vannas microscissors. The site of hyalin-like formation adhering on the area of **Bowman's membrane** was next carefully scraped with the foreign body needle.

Following this procedure, a dressing **lens** was fitted to the eye. In 2 cases recurrences occurred, but the healing process was successful in these cases after treatment. With this simplified microsurgical procedure, the recurrent **corneal** erosion was curable.

Through the application of dressing **lenses**, the danger of recurrence was eliminated, and the healing process was considerably shortened.

Record Date Created: 19930216

Record Date Completed: 19930216

22/7/13 (Item 13 from file: 73)

Fulltext available through: [USPTO Full Text Retrieval Options](#) [ScienceDirect](#)  
EMBASE

(c) 2007 Elsevier B.V. All rights reserved.  
05749054 EMBASE No: 1994147081

**Glued-on hard contact lenses as an artificial epithelium in most severe eye burns**

DIE KONTAKTLINSE ALS KUNSTLICHES EPITHEL BEI VERATZUNGEN

Kuckelkorn R.; Reim M.

Augenklinik, Medizinische Fakultat, RWTH, Pauwelsstrasse 30, D-52057 Aachen Germany  
Contactologia ( CONTACTOLOGIA ) ( Germany ) 1994 , 16/2 (74-81)

CODEN: CNTCD ISSN: 0171-9599

Document Type: Journal ; Short Survey

Language: GERMAN Summary Language: GERMAN; ENGLISH

The procedure to apply a hard contact **lens** in patients with abnormal or damaged **corneal epithelium** was established by Dohlman and Kaufman 25 years ago. After removal of the **corneal epithelium** the contact **lens** of polymethylmethacrylate (PMMA) is attached to **Bowman's membrane** with cyanoacrylate adhesive. Most of the **corneal** diseases are now successfully treated by the use of soft hydrophilic contact **lenses**. The application of a glued-on contact **lens** is now restricted to the treatment of progressive **corneal** ulceration, mainly in severe chemical and thermal burns. The major problem in these cases remains the inability of the **epithelium** to regenerate on the **cornea**. New therapeutic approaches could not solve the problem of primary epithelial regeneration and prevention

of ulceration. The use of the artificial **epithelium** prevents the **corneal** stroma from infiltration with leukocytes and their destroying enzymatic activities. The anti-inflammatory treatment with corticosteroids can be continued, until the eye is free of irritation and a penetrating keratoplasty can be performed.

22/7/14 (Item 14 from file: 34)

Fulltext available through: [ScienceDirect \(Elsevier\)](#) [USPTO Full Text Retrieval Options](#) [ScienceDirect](#)  
[SciSearch\(R\)](#) Cited Ref Sci

(c) 2007 The Thomson Corp. All rights reserved.

03046362 **Genuine Article#:** MZ314 **Number of References:** 21

**SPECULAR MICROSCOPIC EVALUATION OF THE CORNEAL EPITHELIUM AFTER EXCIMER-LASER PHOTOREFRACTIVE KERATECTOMY**

**Author:** AMANO S; SHIMIZU K; TSUBOTA K

**Corporate Source:** MUSASHINO RED CROSS HOSP, DIV OPHTHALMOL, 1-26-1

KYONANCHO/MUSASHINO/TOKYO 180/JAPAN/; MUSASHINO RED CROSS HOSP, DIV

OPHTHALMOL/MUSASHINO/TOKYO 180/JAPAN/; TOKYO DENT COLL, DEPT OPHTHALMOL/CHIBA//JAPAN/

**Journal:** AMERICAN JOURNAL OF OPHTHALMOLOGY, 1994, V 117, N3 ( MAR 15 ), P 381-384

**ISSN:** 0002-9394

**Language:** ENGLISH **Document Type:** ARTICLE

**Abstract:** Nineteen eyes underwent photorefractive keratectomy to correct myopia. Using the specular microscope, we observed the central **corneal epithelium** of each eye preoperatively and at one, three, and six months after surgery. A normal epithelial pattern was observed in 18 eyes (94.7%) at one and three months and in 19 eyes (100%) at six months after surgery. There was no statistically significant difference in the pre- and postoperative mean cell area and corresponding coefficient of variation. These results suggest that the destruction of **Bowman's layer** produced by photorefractive keratectomy does not affect the morphologic characteristics of the most superficial layer of the **corneal epithelium**.

22/7/15 (Item 15 from file: 5)

Fulltext available through: [USPTO Full Text Retrieval Options](#) [ScienceDirect](#)  
[Biosis Previews\(R\)](#)

(c) 2007 The Thomson Corporation. All rights reserved.

14186899 **Biosis No.:** 199799820959

**Examination of the human cornea with the confocal microscope after excimer-laser photorefractive keratectomy**

**Author:** Boehnke Matthias (Reprint); Schipper Isaak; Thaer Andreas

**Author Address:** Univ.-Augenklin., CH-3010 Bern, Switzerland\*\*Switzerland

**Journal:** Klinische Monatsblaetter fuer Augenheilkunde 211 ( 3 ): p 159-167 1997 1997

**ISSN:** 0023-2165

**Document Type:** Article

**Record Type:** Abstract

**Language:** German

**Abstract:** Background. In photorefractive keratectomy (PRK) procedures, a variable superficial central **corneal** scar formation ("haze") can be observed following removal of **corneal** stromal tissue. Today, a near to normal slit lamp finding is observed one year postoperatively in most patients. We employed the slit scanning confocal microscope to study the **corneal** morphology years after PRK. Methods. We selected 5 patients, who had been subjected to unilateral photorefractive surgery 1-3 years earlier and who had no **corneal** haze upon slit lamp examination. As controls we investigated the non - treated **corneas** of these patients, 5 healthy controls and 5 contact **lens** wearers. The confocal microscopic investigation was performed with 25x, 40x and 50x water immersion objectives. The video signal was synchronized with the slit scan and stored on S-VHS video tape. By reviewing the videos in the single frame mode, all **corneal** layers could be qualitatively

evaluated. Results. Some minor abnormalities were observed in the **epithelium** of all PRK - treated eyes. In the epithelial basal cell layer some round structures of about the size of a cell with high reflectivity were observed. These changes were only occasionally found in contact **lens** wearers, but not in non treated or normal control eyes. **Bowman's layer** was absent in the PRK treated eyes, instead, a fine layer of collagen tissue of increased reflectivity was found. The subepithelial **corneal** nerve plexus was normal in all non - treated eyes, whereas in the PRK - treated **corneas** nerve shape and branching pattern were changed to quite an extent. In the anterior stroma the keratocyte nucleus patterns indicated an increased cell density and irregular spacing, whereas a normal keratocyte pattern was found in the deeper stromal layers. A significant finding was the observation of rod and needle shaped highly reflective structures, which were limited to the area of the excimer laser keratectomy with a predominance in the anterior stroma. These longitudinal structures themselves consisted of linearly arranged highly reflective granules, which sometimes also were found as isolated dots within keratocyte processes.. In long term contact **lens** wearers a comparable granule type, however with a singular and scattered arrangement, was variably found in all **corneal** regions and layers. In normal controls none of these findings were present. In contact **lens** wearers and PRK patients with a contact **lens** history, the **corneal** endothelium showed some degree of polymegathisms but no other specific findings. Discussion. Up to now, refractive surgery with the excimer laser has been reported to elicit no other stromal changes but a mild fibroblast activation with subsequent scar tissue formation. In clinically clear **corneas** after PRK, we have described a new type of stromal deposit observed 1-3 years after surgery. As acute wound healing responses might have been expected to have passed at this point, this highly reflective stromal deposit can be assumed to consist of linear keratocyte processes filled with some highly reflective (degenerative?) matter as well as a corresponding extracellular stromal deposit arranged parallel to the stromal collagen bundles. Possibly, these stromal deposits represent the result of an inflammatory or degenerative stromal response resulting in the formation of stromal lipofuscin deposits. Visual acuity was not impaired in the patients investigated in this study. As these stromal deposits appear to be persisting years after surgery and possibly are irreversible in nature, a long term effect on the **corneal** physiology and function should carefully be monitored.

22/7/19 (Item 19 from file: 5)

Biosis Previews(R)

(c) 2007 The Thomson Corporation. All rights reserved.

16138782 **Biosis No.:** 200100310621

**The effects of clinical patching techniques on corneal re-epithelialization**

**Author:** Fowler A M (Reprint); Roberts B C; Zarovnaya E L; Vanderveldt S L (Reprint) ; Lee S; Fowler W C (Reprint)

**Author Address:** Ophthalmology Dept., Duke Univ. Medical Center, Durham, NC, USA\*\*USA

**Journal:** IOVS 42 ( 4 ): p S890 March 15, 2001 2001

**Medium:** print

**Conference/Meeting:** Annual Meeting of the Association for Research in Vision and Ophthalmology Fort Lauderdale, Florida, USA April 29-May 04, 2001; 20010429

**Document Type:** Meeting; Meeting Abstract

**Record Type:** Citation

**Language:** English

22/7/20 (Item 20 from file: 73)

Fulltext available through: [ScienceDirect \(Elsevier\)](#) [USPTO Full Text Retrieval](#)  
Options [ScienceDirect](#)

**EMBASE**

(c) 2007 Elsevier B.V. All rights reserved.

12232306 [EMBASE No:](#) 2003342691

ASRC Contract Searcher: Jeanne Horrigan  
Serial 10/661400  
March 1, 2007

10

**Lamellar or surface?**

Kohnen T.

Journal of Cataract and Refractive Surgery ( J. CATARACT REFRACTIVE SURG. ) ( United States ) 2002 , 28/8 (1305-1306)

CODEN: JCSUE ISSN: 0886-3350

Document Type: Journal ; Editorial

Language: ENGLISH

Number Of References: 7

[File 9] **Business & Industry(R)** Jul/1994-2007/Feb 28  
[File 149] **TGG Health&Wellness DB(SM)** 1976-2007/Feb W2  
[File 148] **Gale Group Trade & Industry DB** 1976-2007/Feb 20  
[File 135] **NewsRx Weekly Reports** 1995-2007/Feb W4  
[File 441] **ESPICOM Pharm&Med DEVICE NEWS** 2007/Aug W4  
[File 636] **Gale Group Newsletter DB(TM)** 1987-2007/Feb 28  
[File 98] **General Sci Abs** 1984-2007/Mar

| Set       | Items    | Description   |
|-----------|----------|---|
| S1        | 406      | S (CORNEA OR CORNEAL) (1N)EPITHELIUM  |
| S2        | 111      | S BOWMAN? ?(1W) (MEMBRANE? ? OR LAYER? ?) OR (ANTERIOR() (LIMITING OR<br>ELASTIC) ()LAMINA) |
| S3        | 1        | S DEEPITHELIALI?ED()CORNEA  |
| S4        | 74838    | S LENS OR LENSES  |
| S5        | 0        | S S3(S)S4   |
| S6        | 4        | S S1(S)S2(S)S4  |
| <b>S7</b> | <b>4</b> | <b>RD (unique items)</b>  |

7/3,K/1 (Item 1 from file: 149)

TGG Health&Wellness DB(SM)

(c) 2007 The Gale Group. All rights reserved.

02930302 **Supplier Number:** 88578832 (USE FORMAT 7 OR 9 FOR FULL TEXT )

**Common ophthalmologic emergencies: a systematic approach to evaluation and management.**

Cuculino, Gregory P.

Emergency Medicine Reports , 23 , 13 , 163(15)

June 17 , 2002

**Publication Format:** Newsletter

**ISSN:** 0746-2506

**Language:** English

**Record Type:** Fulltext **Target Audience:** Professional

**Word Count:** 12752 **Line Count:** 01085

...opened their eyelids upon waking. This is caused by a weakness in the attachment to **Bowman's membrane** in the previously injured area. Upon waking, the eyelids pull off the **corneal epithelium** over the weakened area, resulting in a **corneal abrasion** and pain. Patients at risk for...

...are those presenting with large abrasions or those abrasions caused by fingernails or hard contact **lenses**. (20)

**Corneal Foreign Bodies.** The subjective sensation of a **corneal** foreign body is one of...

7/3,K/2 (Item 2 from file: 149)

TGG Health&Wellness DB(SM)

(c) 2007 The Gale Group. All rights reserved.

01698526 **Supplier Number:** 19323776 (USE FORMAT 7 OR 9 FOR FULL TEXT )

**Long-term restoration of damaged corneal surfaces with autologous cultivated corneal epithelium. (Early Reports)**

Pellegrini, Graziella; Traverso, Carlo E.; Franzi, Adriano Tito; Zingirian, Mario; Cancedda, Ranieri; De Luca, Michele  
The Lancet , v349 , n9057 , p990(4)

April 5 , 1997

**Publication Format:** Magazine/Journal

**ISSN:** 0099-5355

**Language:** English

**Record Type:** Fulltext; Abstract **Target Audience:** Professional

**Word Count:** 2980 **Line Count:** 00249

...monoclonal antibody. A uniform positive staining was present (figure

2D), as described for normal **corneal epithelium**.10  
Patient 2 was a man aged 39 years who presented with an alkali burn...

7/3,K/3 (Item 3 from file: 149)

TGG Health&Wellness DB(SM)

(c) 2007 The Gale Group. All rights reserved.

01475052 **Supplier Number:** 14925530 (USE FORMAT 7 OR 9 FOR FULL TEXT )

**Lamellar keratoplasty after trabeculectomy with 5-fluorouracil.**

Hayashi, Mieko; Ibaraki, Nobuhiro; Tsuru, Tadahiko  
American Journal of Ophthalmology , v117 , n2 , p268(2).

Feb 15 , 1994

**Publication Format:** Magazine/Journal

**ISSN:** 0002-9394

**Language:** English

**Record Type:** Fulltext **Target Audience:** Professional

**Word Count:** 515 **Line Count:** 00046

...performed in the 26th month. Histopathologic study (Fig. 2) disclosed dense fibrous proliferation between the **corneal epithelium** and **Bowman's layer**. The graft stayed epithelialized only for a short period, and epithelial defects persisted. A bandage soft contact **lens** was placed. The graft became slightly cloudy and visual acuity was 20/60 at the...

### FOREIGN AND INTERNATIONAL PATENTS

[File 350] Derwent WPIX 1963-2006/UD=200714

[File 347] JAPIO Dec 1976-2006/Oct (Updated 070201)

| Set | Items  | Description   |
|-----|--------|---|
| S1  | 271    | S (CORNEA OR CORNEAL) (1N) EPITHELIUM   |
| S2  | 81     | S BOWMAN? ?(1W) (MEMBRANE? ? OR LAYER? ?) OR (ANTERIOR() (LIMITING OR ELASTIC) () LAMINA) |
| S3  | 2      | S DEEPITHELIALI?ED() CORNEA   |
| S4  | 387610 | S LENS OR LENSES  |
| S5  | 8      | <b>S S1 AND S2 AND S4</b>   |
| S6  | 2      | S S3 AND S4   |
| S7  | 1      | S S6 NOT S5   |

5/5,K/5 (Item 5 from file: 350)

Derwent WPIX

(c) 2007 The Thomson Corporation. All rights reserved.

0013625983 Drawing available

WPI Acc no: 2003-721545/200368

Related WPI Acc No: 2002-268928

XRAM Acc no: C2003-198439

XRPX Acc No: N2003-576965

**Epithelium separating or lifting device includes epithelium delaminator that applies mechanical force beneath epithelium to separate epithelium from stroma without cutting the stroma**

Patent Assignee: PEREZ E (PERE-I)

Inventor: PEREZ E

Patent Family ( 7 patents, 101 countries )

| Patent Number  | Kind | Date     | Application Number | Kind | Date     | Update | Type |
|----------------|------|----------|--------------------|------|----------|--------|------|
| WO 2003061518  | A2   | 20030731 | WO 2003US1549      | A    | 20030117 | 200368 | B    |
| US 20030220653 | A1   | 20031127 | US 2000618580      | A    | 20000718 | 200378 | E    |
|                |      |          | WO 2001US22633     | A    | 20010718 |        |      |
|                |      |          | US 2002350003      | P    | 20020117 |        |      |
|                |      |          | US 2002393305      | P    | 20020701 |        |      |
|                |      |          | US 2002408226      | P    | 20020903 |        |      |
|                |      |          | US 2003346664      | A    | 20030117 |        |      |
| AU 2003207603  | A1   | 20030902 | AU 2003207603      | A    | 20030117 | 200422 | E    |
| EP 1474084     | A2   | 20041110 | EP 2003705818      | A    | 20030117 | 200473 | E    |
|                |      |          | WO 2003US1549      | A    | 20030117 |        |      |
| JP 2005515019  | W    | 20050526 | JP 2003561464      | A    | 20030117 | 200535 | E    |
|                |      |          | WO 2003US1549      | A    | 20030117 |        |      |
| MX 2004006954  | A1   | 20050401 | WO 2003US1549      | A    | 20030117 | 200571 | E    |
|                |      |          | MX 20046954        | A    | 20040716 |        |      |
| CN 1642499     | A    | 20050720 | CN 2003806348      | A    | 20030117 | 200575 | E    |

Priority Applications (no., kind, date): US 2003346664 A 20030117; WO 2001US22633 A 20010718; US 2000618580 A 20000718; US 2002393305 P 20020701; US 2002350003 P 20020117; US 2002408226 P 20020903

**Alerting Abstract** WO A2

NOVELTY - An **epithelium** separating or lifting device comprises an **epithelium** delaminator that applies a mechanical force beneath the **epithelium** (202) to separate the **epithelium** from a stroma (204) without cutting the stroma.

USE - For separating or lifting **epithelium** from an eye having a **cornea** with **epithelium** and a stroma (claimed).

ADVANTAGE - The **epithelium** delaminator of the inventive device can create an epithelial flap that may be re-placed or positioned variously over an implant such as an ocular lens

or over the site of a refractive surgical procedure, e.g. Laser Assisted Subepithelial Keratomileusis.

DESCRIPTION OF DRAWINGS - The figure is a side, cross-sectional view of a wire separating the **epithelium** from the **corneal stroma**.

200 Wire

202 **Epithelium**

204 Stroma

**Technology Focus ...**

...the force by injecting a gel between the **epithelium** and the anterior surface. An **ocular lens** comprising a synthetic polymer is placed on the stroma. The chemical composition may also comprise...

**Original Abstracts:**

...ophthalmology; the devices and methods relate variously to separating or lifting **corneal epithelium** from the **eye** preferably in a substantially continuous layer, placing a **lens** or other suitable **ocular** or medical device beneath the epithelial membrane, and to the resulting structures formed by those... ... surface in the eye between the **epithelium** and the **corneal stroma** (**Bowman's membrane**), specifically **separating** in the region of the lamina lucida. The separator or dissector may have a structure that rolls... ... a refractive procedure or after placement of an **ocular lens** (or other subepithelial device) on **the eye**. The subepithelial device may comprise a wide variety of synthetic, natural, or composite polymeric... ... to separating or lifting **corneal epithelium** from the **eye** preferably in a substantially continuous layer, **placing a lens** or other suitable **ocular** or medical device beneath the epithelial **membrane**, and to the resulting structures formed by those procedures. The de-epithelialization devices generally utilize... ... and the **corneal stroma** (**Bowman's membrane**), specifically separating in the region of the lamina lucida. The **separator** or dissector may have a structure that rolls or vibrates (or both) at that cleavage... ... placement of an **ocular lens** (or other subepithelial device) on the **eye**. The subepithelial device **may** comprise a wide variety of synthetic, natural, or composite polymeric materials. The step of replacing... ... **epithelium** from the **eye** preferably in a substantially continuous layer, placing a **lens** or other **suitable ocular** or medical device beneath the epithelial membrane, and to the resulting **structures** formed by those procedures. The de-epithelialization devices generally utilize a non-cutting separator or... ... s membrane), specifically separating in the region of the lamina lucida. The separator or dissector **may** have a structure that rolls or vibrates (or both) at that cleavage surface or interface during the... ... subepithelial device) on the **eye**. The subepithelial device may comprise a wide variety of synthetic, **natural**, or composite polymeric materials. The step of replacing epithelial tissue upon the subepithelial device or...

...

**Claims:**

...**epithelium** from an eye having a **cornea** with **epithelium** and a **stroma**, the device comprising an **epithelial delaminator** member configured to apply a mechanical force beneath that **epithelium** to separate the **epithelium** from...

5/5, K/6 (Item 6 from file: 350)

Derwent WPIX

(c) 2007 The Thomson Corporation. All rights reserved.

0006077388 Drawing available

WPI Acc no: 1992-315886/199238

Related WPI Acc No: 1988-119356; 1992-182854

XRAM Acc no: C1992-140299

XRPX Acc No: N1992-241767

Collagen-hydrogel material for promoting epithelium growth - comprises three-dimensional meshwork of hydrogel polymer, having collagen macromolecules dispersed in it, used for artificial lenses

Patent Assignee: CBS **LENS** (CBSL-N)

Inventor: CIVERCHIA L; SHEPARD D D

Patent Family ( 6 patents, 20 countries )

| Patent Number | Kind | Date     | Application Number | Kind | Date     | Update | Type |
|---------------|------|----------|--------------------|------|----------|--------|------|
| WO 1992014420 | A1   | 19920903 | WO 1992US1233      | A    | 19920214 | 199238 | B    |
| AU 199214276  | A    | 19920915 | AU 199214276       | A    | 19920214 | 199251 | E    |
|               |      |          | WO 1992US1233      | A    | 19920214 |        |      |
| US 5213720    | A    | 19930525 | US 1986920031      | A    | 19861016 | 199322 | E    |
|               |      |          | US 1989402986      | A    | 19890901 |        |      |
|               |      |          | US 1990624346      | A    | 19901206 |        |      |
|               |      |          | US 1991657091      | A    | 19910215 |        |      |
| EP 571535     | A1   | 19931201 | EP 1992906982      | A    | 19920214 | 199348 | E    |
|               |      |          | WO 1992US1233      | A    | 19920214 |        |      |
| US 5522888    | A    | 19960604 | US 1986920031      | A    | 19861006 | 199628 | E    |
|               |      |          | US 1989402986      | A    | 19890901 |        |      |
|               |      |          | US 1990624346      | A    | 19901206 |        |      |
|               |      |          | US 1991657091      | A    | 19910215 |        |      |
|               |      |          | US 199319596       | A    | 19930219 |        |      |
|               |      |          | US 1995444191      | A    | 19950518 |        |      |
| US 5716633    | A    | 19980210 | US 1986920031      | A    | 19861016 | 199813 | E    |
|               |      |          | US 1989402986      | A    | 19890901 |        |      |
|               |      |          | US 1990624346      | A    | 19901206 |        |      |
|               |      |          | US 1991657091      | A    | 19910215 |        |      |
|               |      |          | US 199319598       | A    | 19930219 |        |      |
|               |      |          | US 1995475768      | A    | 19950607 |        |      |

Priority Applications (no., kind, date): US 1995475768 A 19950607; US 1995444191 A 19950518; US 199319598 A 19930219; US 199319596 A 19930219; US 1990624346 A 19901206; US 1989402986 A 19890901; US 1986920031 A 19861016; US 1986920031 A 19861006; US 1991657091 A 19910215; US 1991657000 A 19910215

#### Alerting Abstract WO A1

A collagen-hydrogel comprises: a) a hydrogel polymer formed by the free radical polymerisation of a hydrophilic monomer soln. gelled and crosslinked to form a 3-D polymeric meshwork for anchoring collagen; and b) a collagen macromolecule comprising a ground substance of tissue interdisposed within the polymeric meshwork forming a collagen-hydrogel for promoting epithelial cell growth.

The collagen-hydrogel when attached to **Bowmans membrane** of the **cornea** of an eye, is capable of at least one of supporting and promoting epithelial cell growth enabling the **corneal epithelium** to attach to and cover the collagen-hydrogel and regeneration of the stroma. The material has a ratio by wt. of collagen-to-hydrogel of 0.6:1000 to less than 0.6:1000 but at a level where sufficient collagen is present by wt. to promote epithelial cell growth and/or to bring about regeneration of the stroma.

USE/ADVANTAGE - A collagen-hydrogel material promotes epithelial cell growth and regeneration of the stroma, and can be used to fabricate artificial **lenses** and contact **lenses**. These artificial **lenses** can be reproduced reliably in the laboratory and are not dependent on the availability of human tissue as is the case in prior art **corneal** tissue **lenses**, the native collagen can be harvested from tissues of human **cornea**, livestock **cornea** of calves or livestock skins (claimed). The **lenses** are not rejected by the eye. They can be made to any selected geometrical shape or diopter power using latching, moulding or freezing processes.

#### Original Abstracts:

A collagen-hydrogel material, artificial **lens** (60) or contact **lens** (60) for the **eye** (40) fabricated from the collagen-hydrogel, which, when affixed to **Bowman's membrane** (48), **promotes** and **supports** epithelial cell growth (52) enabling **corneal epithelium**, during the **healing process**, to attach to and cover the **lens** (60) and to **regenerate** the stroma (50) which grows over the edge of and attaches to the optical **lens** (60). The **collagen-hydrogel**

is a hydrogel polymer formed by the free radical polymerization of a hydrophilic monomer solution... ... shown. Also shown is an optical **lens** for the eye, fabricated from the collagen-hydrogel, **which**, when affixed to **Bowman's** membrane, promotes and supports epithelial cell growth, **enables corneal epithelium** of the **cornea** of an eye, during **the healing** process, to attach to and cover the anterior surface of the **lens** implanting the same and to regenerate the stroma **which** grows over the edge of and attaches to the optical **lens**. Laid down in the layers of the regenerated **stroma** are new keratocytes and collagen fibial produced from keratocytes. The collagen-hydrogel is a hydrogel... ... collagen-hydrogel material or an artificial **lens** or contact **lens** produced therefrom can include a **epithelial** growth enhancer to promote epithelial cell growth during the healing process... ... optical **lens** for the eye, fabricated from the collagen-hydrogel, which, when affixed to **Bowman's** membrane, promotes and supports epithelial cell growth, enables **corneal epithelium** of the **cornea** of an eye, during the healing process, to attach to and cover the anterior surface of the **lens** implanting the same and to regenerate the stroma which grows over the edge of and attaches to the optical **lens**. Laid down in the layers of the regenerated stroma are new keratocytes and **collagen** fibial produced from keratocytes. The collagen-hydrogel is a hydrogel polymer formed by the free... ... artificial **lens** or contact **lens** produced therefrom can include a epithelial growth enhancer to promote **epithelial** cell growth **during** the healing process... ... fabricated from the collagen-hydrogel, which, when affixed to **Bowman's** membrane, promotes and supports **epithelial** cell growth, enables **corneal epithelium** of the **cornea** of an eye, during **the healing process**, to attach to and cover the anterior **surface of the lens** implanting the same and to regenerate the stroma which grows over the edge of and attaches to the **optical lens**. Laid down in the layers of the regenerated stroma are new keratocytes and collagen fibial produced from keratocytes. **The** collagen-hydrogel is a hydrogel polymer formed by the free radical polymerization of a hydrophilic... produced therefrom can include a epithelial growth enhancer to promote epithelial cell growth during the **healing** process.  
... ... 40) fabricated from the collagen-hydrogel, which, when affixed to **Bowman's** membrane (48), promotes **and** supports epithelial cell **growth** (52) enabling **corneal epithelium**, during the healing process, to attach to and cover the **lens** (60) and to regenerate the stroma (50) which grows over the **edge of** and attaches to the optical **lens** (60). The collagen-hydrogel is a hydrogel polymer formed by the free radical polymerization of a hydrophilic monomer solution gelled and crosslinked in **the** presence of an aqueous stock solution of collagen to form a three dimensional polymeric meshwork

...

**Claims:**

The collagen-hydrogel when attached to **Bowmans membrane** of the **cornea** of an eye, is capable of at least one of supporting and promoting epithelial cell growth enabling the **corneal epithelium** to attach to and cover the collagen-hydrogel and regeneration of the stroma. The material... ... and regeneration of a stroma of an eye enabling **corneal epithelium** of an eye to **adhere to** and cover said collagen-hydrogel material, said collagen-hydrogel material having a ratio by weight... ... A **lens** having a predetermined shape and power which promotes and **supports** growth of **corneal** epithelial cells across the surface thereof and regeneration of the stroma, said **lens** comprising a **lens** body having anterior and posterior surface **and** formed of a **collagen-hydrogel** capable of promoting epithelial cell growth comprising a hydrogel polymer formed by the free radical... ... **epithelium** of the eye, said protein-hydrogel material having a ratio by weight of **protein-to-hydrogel** in the range of about 0.6-to-1000 and at a level wherein sufficient...

XRAM Acc no: C1992-083682

XRPX Acc No: N1992-138076

Locating collagen-hydrogel lens on cornea - by securing edge under annular flap formed by groove in corneal stroma

Patent Assignee: CBS LENS (CBSL-N)

Inventor: CIVERCHIA L; SHEPARD D D

Patent Family ( 1 patents, 1 countries )

| Patent Number | Kind | Date     | Application Number | Kind | Date     | Update | Type |
|---------------|------|----------|--------------------|------|----------|--------|------|
| US 5112350    | A    | 19920512 | US 1986920070      | A    | 19861016 | 199222 | B    |
|               |      |          | US 1990511847      | A    | 19900406 |        |      |
|               |      |          | US 1991657000      | A    | 19910215 |        |      |

Priority Applications (no., kind, date): US 1990511847 A 19900406; US 1986920070 A 19861016; US 1991657000 A 19910215

**Alerting Abstract** US A

To locate on the cornea an artificial lens of collagen-hydrogel to promote epithelial cell growth and stroma regeneration an artificial lens is fixed to Bowman's membrane over the pupillary zone after removing corneal epithelium from the membrane and forming an annular V-shaped groove (80) of depth less than stroma (50) thickness and dissecting the groove edge to form a tissue wing (88) under which the lens periphery (66) can be located.

**Original Abstracts:**

A method for locating on a cornea an artificial lens fabricated from a collagen-hydrogel for promoting epithelial cell growth and regeneration of the stroma is shown. The method provides for affixing an artificial lens to the Bowman's membrane and the lens, during the healing process, promotes and supports epithelial cell growth enabling corneal epithelium of the cornea of an eye to attach to and cover the anterior surface of the lens implanting the same and to regenerate the stroma which grows over the edge of and attaches to the optical lens. Laid down in the layers of the regenerated stroma are new keratocytes and collagen fibial produced... to produce keratocytes including collagen fibial growth. The collagen-hydrogel material or an artificial lens or contact lens produced therefrom can include a epithelial growth enhancer to promote epithelial cell growth during the healing...

5/5,K/8 (Item 8 from file: 350)

Derwent WPIX

(c) 2007 The Thomson Corporation. All rights reserved.

0004384374

WPI Acc no: 1988-119356/198817

Related WPI Acc No: 1992-182854; 1992-315886

XRAM Acc no: C1988-053540

XRPX Acc No: N1988-090684

Collagen hydrogel for promoting epithelial cell growth - useful for prodn. of artificial or contact lenses to promote healing of corneal epithelium during implantations

Patent Assignee: CBS LENS (CBSL-N)

Inventor: CIVERCHIA L; SHEPARD D; SHEPARD D D

Patent Family ( 4 patents, 13 countries )

| Patent Number | Kind | Date     | Application Number | Kind | Date     | Update | Type |
|---------------|------|----------|--------------------|------|----------|--------|------|
| WO 1988002622 | A    | 19880421 | WO 1987US2645      | A    | 19871014 | 198817 | B    |
| US 4983181    | A    | 19910108 | US 1986920031      | A    | 19861016 | 199105 | E    |
|               |      |          | US 1986920070      | A    | 19861016 |        |      |
|               |      |          | US 1989402986      | A    | 19890901 |        |      |
| US 4994081    | A    | 19910219 | US 1986920031      | A    | 19861016 | 199110 | E    |
|               |      |          | US 1986920070      | A    | 19861016 |        |      |
|               |      |          | US 1990511847      | A    | 19900416 |        |      |
| US 5114627    | A    | 19920519 | US 1986920031      | A    | 19861016 | 199223 | E    |

|  |  |               |   |          |  |  |
|--|--|---------------|---|----------|--|--|
|  |  | US 1989402986 | A | 19890901 |  |  |
|  |  | US 1990624346 | A | 19901206 |  |  |

Priority Applications (no., kind, date): US 1990624346 A 19901206; US 1990511847 A 19900416; US 1989402986 A 19890901; US 1986920070 A 19861016; US 1986920031 A 19861016

**Alerting Abstract WO A**

Collagen-hydrogel for promoting epithelial cell growth comprises (a) a hydrogel polymer formed by the free-radical polymerisation of a hydrophilic monomer soln. gelled and crosslinked to form a 3-dimensional polymeric meshwork for anchoring macromolecules; and (b) macromolecules comprising a constituent of a ground substance of tissue, interdispersed in the polymeric network to form a collagen -hydrogel for promoting epithelial cell growth.

The collagen-hydrogel, when attached to **Bowman's membrane** of the **cornea** of an eye, is capable of supporting and promoting epithelial cells growth so that the **corneal epithelium** can attach to and cover the collagen-hydrogel.

**USE/ADVANTAGE** - The collagen hydrogel promotes epithelial cell growth and may be used in the prodn. of artificial or contact **lenses** to promote healing of **corneal epithelium** during implantations.

**Equivalent Alerting Abstract** ...substance of tissues interdisposed within meshwork to promote epithelial cell growth attaching such cells to **Bowman's membrane of cornea** of eye and covering and adhering to the hydrogel. Pref hydrophilic monomer is hydroxyethylmethacrylate and cross-linking agent is ethyleneglycol methacrylate. Contact **lens** can be formed from above hydrogel compsn and positioned over pupil of eye and affixed to **Bowman's membrane**, and its anterior and posterior surfaces covered with growth of **corneal** epithelial cells... ...**ADVANTAGE** - Permanent artificial **lens** which resists rejection... ...**Optical lens** of predetermined geometric shape and power is on the **cornea**. **Lens** comprises an outer part contg... ...an outer edge, posterior- and anterior-surfaces. **Lens** is formed from a hydrogel polymer formed by free radical polymerisation of a hydrophilic monomer... ...**USE** - For promoting epithelial cell growth when contiguous to the **Bowman's membrane** and **corneal epithelium of cornea** of an eye.

**Original Abstracts:**

promoting epithelial cell growth is shown. Also shown is an optical **lens** for the eye, **fabricated** from the collagen-hydrogel, which, when affixed to **Bowman's membrane**, promotes and supports **epithelial** cells growth and enables **corneal epithelium** of the **cornea** of an eye, during the healing process, to attach to and cover the anterior surface of the **lens** implanting the same. **The** collagen-hydrogel is a hydrogel polymer formed by the free radical polymerization of a hydrophilic..... a collagen-hydrogel for promoting epithelial cell growth. A collagen-hydrogel **lens** fabricated from the **collagen-hydrogel**, when affixed to **Bowman's membrane** of the **cornea** of an eye by suturing or... ... capable of supporting and promoting cell growth of epithelial cells enabling **corneal epithelium** to attach to and cover the collagen-hydrogel **lens**. An **artificial lens or contact lens** **produced** from the **collagen-hydrogel**, during the healing process, is capable of eliminating rejection of and promoting the implantation of the **artificial lens or contact lens** **between** **Bowman's membrane** and **corneal epithelium**.

..... locating on the **cornea** an optical **lens** having a preselected geometric shape and power wherein the optical **lens** is formed of a collagen-hydrogel for promoting **epithelial** cell growth is shown. The method comprises the steps of: removing from **Bowman's membrane** over the area of the pupillary **zone** of the eye a portion of the **corneal epithelium**; forming on **Bowman's membrane** a "V" shaped annular groove having a diameter substantially equal to the maximum geometrical dimensions of the optical **lens** and a preselected depth; dissecting the peripheral edge of the groove forming a wing of **corneal** tissue having a preselected length; placing the posterior surface of the optical **lens** on the anterior surface of **Bowman's membrane** and positioning the outer edge of the optical **lens** under the **corneal** wing, and affixing the optical **lens** to **Bowman's membrane** over the pupillary **zone** of the eye to maintain the same on the **cornea** with the **corneal** wing overlying the edge of the optical **lens**. With the edge of the **lens** in contact with **corneal epithelium**, the collagen-hydrogel for promoting epithelial cell growth interacts with epithelial cells during a healing period to promote growth... ... the anterior surface of the optical **lens**

implanting the same under **corneal epithelium**.

... ... geometric shape and power. The optical **lens** (60) is formed of a collagen-hydrogel for **promoting** epithelial cell growth.

The optical **lens** (60) when affixed to **Bowman's** membrane (40), promotes and supports epithelial cell (52) growth and enables **corneal epithelium** (42) of the **cornea** of an **eye**, during **the** healing process, to attach to and cover the anterior surface (70) of the **lens** (60) implanting the same. The collagen-hydrogel is a hydrogel polymer formed by the free radical polymerization of a hydrophilic **monomer** solution gelled and crosslinked in the presence of an aqueous solution of macromolecules to form

7/5,K/1 (Item 1 from file: 350)

Derwent WPIX

(c) 2007 The Thomson Corporation. All rights reserved.

0007311249 Drawing available

WPI Acc no: 1995-373121/199548

Related WPI Acc No: 1996-208538; 1996-455033; 1998-129731; 2001-059787; 2002-381825; 2003-688562

XRPX Acc No: N1995-275163

**Surgical laser evaluation method for ophthalmological surgery - involves making first and second vad keratograph and evaluating laser beam performance based on comparison of first and second vad keratograph**

Patent Assignee: O'DONNELL F E (ODON-I)

Inventor: O'DONNELL F E

Patent Family ( 1 patents, 1 countries )

| Patent Number | Kind | Date     | Application Number | Kind | Date     | Update | Type |
|---------------|------|----------|--------------------|------|----------|--------|------|
| US 5460627    | A    | 19951024 | US 199355578       | A    | 19930503 | 199548 | B    |
|               |      |          | US 1994269139      | A    | 19940630 |        |      |

Priority Applications (no., kind, date): US 199355578 A 19930503; US 1994269139 A 19940630

#### **Alerting Abstract US A**

The method involves performing a first Placido-disc video keratoscope procedure on a substrate to determine surface contour of the substrate. A first video keratograph is made and a laser beam is applied to the substrate. The substrate is ablated with the laser beam. Visualization of the substrate is enhanced by applying a fine hydrophobic lubricant to the substrate.

A second Placido-disc video keratoscope procedure is performed on the substrate to determine a second surface contour of the substrate after ablation. A second video keratograph is made and the laser beam performance is evaluated based upon a comparison of the second and the first video keratographs.

**ADVANTAGE -** Prevents unwanted **lens** effect. Quantifies change in optic curvature of intraocular **lens** implant before and after treatment to alter refractive power. Determines effects of laser beam on artificial **cornea**. Measures topography of **deepithelialised cornea** before and after laser ablation of **cornea**. Allows confirmation of uniform laser beam.

#### **Original Abstracts:**

...by the laser. The substrate can be calibration block, an intraocular **lens** implant, a contact **lens**, an artificial **cornea**, or **cornea**.

## INVENTORS

[File 155] MEDLINE(R) 1950-2007/Feb 27  
[File 5] Biosis Previews(R) 1926-2007/Feb W4  
[File 73] EMBASE 1974-2007/Feb 28  
[File 35] Dissertation Abs Online 1861-2007/Feb  
[File 65] Inside Conferences 1993-2007/Mar 01

| Set | Items | Description                                     |
|-----|-------|---|
| S1  | 77    | S AU=(MARMO C? OR MARMO, C?)                    |
| S2  | 347   | S AU=(BACK A? OR BACK, A?)                      |
| S3  | 0     | S S1 AND S2                                     |
| S4  | 144   | S CORNEAL()EPITHELIUM AND BOWMAN? ?(1W)MEMBRANE |
| S5  | 0     | S S1:S2 AND S4                                  |
| S6  | 2209  | S EPITHELIUM AND BOWMAN? ?                      |
| S7  | 0     | S S1:S2 AND S6                                  |
| S8  | 1     | S ANTERIOR()ELASTIC()LAMINA                     |
| S9  | 0     | S S1:S2 AND S8                                  |

[File 350] Derwent WPIX 1963-2006/UD=200714  
[File 347] JAPIO Dec 1976-2006/Oct (Updated 070201)

| Set       | Items    | Description                                     |
|-----------|----------|---|
| S1        | 7        | S AU=(MARMO C? OR MARMO, C?)                    |
| S2        | 35       | S AU=(BACK A? OR BACK, A?)                      |
| <b>S3</b> | <b>1</b> | <b>S S1 AND S2</b>                              |
| S4        | 15       | S CORNEAL()EPITHELIUM AND BOWMAN? ?(1W)MEMBRANE |
| S5        | 1        | S S1:S2 AND S4                                  |
| S6        | 0        | S S5 NOT S3                                     |

3/5/1 (Item 1 from file: 350)

Derwent WPIX

(c) 2007 The Thomson Corporation. All rights reserved.

0014144596 Drawing available

WPI Acc no: 2004-329380/200430

XRAM Acc no: C2004-124647

XRXPX Acc No: N2004-262879

*Corneal appliance, e.g. corneal onlay for vision correction, includes lens body placed on deepithelialized cornea of eye of patient, and epithelial cells derived from cultured stem cells*

Patent Assignee: OCULAR SCI INC (OCUL-N); BACK A (BACK-I); MARMO J C (MARM-I)

Inventor: BACK A; MARMO C J; MARMO J C

Patent Family ( 11 patents, 106 countries )

| Patent Number  | Kind | Date     | Application Number | Kind | Date     | Update | Type |
|----------------|------|----------|--------------------|------|----------|--------|------|
| WO 2004024035  | A1   | 20040325 | WO 2003US28657     | A    | 20030902 | 200430 | B    |
| AU 2003270593  | A1   | 20040430 | AU 2003270593      | A    | 20030902 | 200462 | E    |
| US 20050080484 | A1   | 20050414 | US 2002410837      | P    | 20020913 | 200526 | E    |
|                |      |          | US 2003464004      | P    | 20030418 |        |      |
|                |      |          | US 2003464590      | P    | 20030421 |        |      |
|                |      |          | US 2003661400      | A    | 20030912 |        |      |
| EP 1549255     | A1   | 20050706 | EP 2003752298      | A    | 20030902 | 200544 | E    |
|                |      |          | WO 2003US28657     | A    | 20030902 |        |      |
| BR 200314266   | A    | 20050726 | BR 200314266       | A    | 20030902 | 200551 | E    |
|                |      |          | WO 2003US28657     | A    | 20030902 |        |      |
| MX 2005002669  | A1   | 20050901 | WO 2003US28657     | A    | 20030902 | 200617 | E    |
|                |      |          | MX 20052669        | A    | 20050310 |        |      |
| CN 1694658     | A    | 20051109 | CN 2003825056      | A    | 20030902 | 200618 | E    |

|                |    |          |                |   |          |        |   |
|----------------|----|----------|----------------|---|----------|--------|---|
| JP 2006508709  | W  | 20060316 | WO 2003US28657 | A | 20030902 | 200620 | E |
|                |    |          | JP 2004536187  | A | 20030902 |        |   |
| TW 200420275   | A  | 20041016 | TW 2003125287  | A | 20030912 | 200629 | E |
| KR 2005042819  | A  | 20050510 | WO 2003US28657 | A | 20030902 | 200640 | E |
|                |    |          | KR 2005704372  | A | 20050314 |        |   |
| US 20060241751 | A1 | 20061026 | US 2002410837  | P | 20020913 | 200671 | E |
|                |    |          | US 2003464004  | P | 20030418 |        |   |
|                |    |          | US 2003464590  | P | 20030421 |        |   |
|                |    |          | US 2003661400  | A | 20030912 |        |   |
|                |    |          | US 2006427293  | A | 20060628 |        |   |

Priority Applications (no., kind, date): US 2002410837 P 20020913; US 2003464004 P 20030418; US 2003464590 P 20030421; US 2003661400 A 20030912; US 2006427293 A 20060628

**Alerting Abstract WO A1**

**NOVELTY** - A corneal appliance comprises a lens body (40) structured to be placed on a deepithelialized cornea of an eye of a patient, and epithelial cells (70) derived from cultured stem cells.

**DESCRIPTION** - A corneal appliance comprises a lens body having an anterior surface, a posterior surface, and a peripheral edge at a juncture of the anterior and posterior surfaces, and being structured to be placed on a deepithelialized cornea of an eye of a patient; and epithelial cells fixedly positioned on the anterior surface of the lens body before the body is placed on the deepithelialized cornea of the eye, the epithelial cells are derived from cultured stem cells. An INDEPENDENT CLAIM is also included for a method of manufacturing a corneal appliance comprising culturing stem cells until a fraction of the stem cells have differentiated into corneal epithelial cells, and applying cells on an anterior surface of a lens body to form a layer of epithelial cells that are fixedly secured on the anterior surface of the lens body before the lens body is placed on the eye.

**USE** - The invention is used as, e.g. corneal onlay used for vision correction (claimed).

**ADVANTAGE** - The invention improves myopia, hyperopia, and astigmatism in a subject.

**DESCRIPTION OF DRAWINGS** - The figure shows a diagram of a front plan view of the corneal appliance.

40 Lens body

70 Epithelial cells

**Class Codes**

**International Patent Classification**

| IPC           | Class Level | Scope | Position  | Status | Version Date |  |  |  |
|---------------|-------------|-------|-----------|--------|--------------|--|--|--|
| A61F-002/14   |             |       | Main      |        | "Version 7"  |  |  |  |
| A61F-009/007  |             |       | Secondary |        | "Version 7"  |  |  |  |
| A61F-0002/14  | A           | I     | L         | B      | 20060101     |  |  |  |
| A61F-0002/14  | A           | I     |           | R      | 20060101     |  |  |  |
| A61F-0009/00  | A           | I     |           | R      | 20060101     |  |  |  |
| A61F-0009/013 | A           | I     |           | R      | 20060101     |  |  |  |
| A61L-0027/00  | A           | I     | F         | B      | 20060101     |  |  |  |
| A61L-0027/38  | A           | I     |           | R      | 20060101     |  |  |  |
| A61F-0002/14  | A           | I     | F         | B      | 20060101     |  |  |  |
| A61F-0002/14  | C           | I     |           | R      | 20060101     |  |  |  |
| A61F-0009/00  | C           | I     |           | R      | 20060101     |  |  |  |
| A61F-0009/007 | C           | I     |           | R      | 20060101     |  |  |  |
| A61L-0027/00  | C           | I     |           | R      | 20060101     |  |  |  |

US Classification, Issued: 623005140, 623005160, 623005110

DWPI Class: A96; D22; P32; P34

Manual Codes (CPI/A-N): A12-V02A; D09-C01A